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Revision of 1952-53:2

ONTARIO
DEPARTMENT OF EDUCATION

MEMORANDUM TO SECONDARY SCHOOL PRINCIPALS

RE THE GRADE XIII COURSE IN TRIGONOMETRY AND STATICS, 1953-54

In conformity with the general opinion that the prescribed course in Trigonometry and Statics is a little too long to be covered thoroughly in the usual time allotment of one period a day, Memorandum 1952-53:2 detailing certain material which might be omitted from the course has been modified as shown on the back of this page. While references are made to the two text-books in common use, the teacher should, of course, constantly bear in mind that the course of study as outlined in Circular H.S.13 and not any particular text is his guide to the topics to be taught.

A study of "Comments on the Grade XIII paper" for recent years reveals the outstanding needs of the candidates as increased accuracy in calculation, a thorough grasp of fundamental principles in both sections of the course, and familiarity with the experimental basis for the topics in Statics, rather than increased emphasis on facility in the purely manipulative work associated with certain sections of the Trigonometry. The suggestions below, especially item 6, are based on this conclusion.

These suggestions, it should be pointed out, are intended to assist the teacher to cover the essentials of the course in adequate fashion with the average student but are not intended to narrow the field of study of the pupil of superior ability. The latter, and particularly, of course, the scholarship candidate, must interpret the prescription of the course as widely as his time permits.

1. Care should be taken that suitable time is reserved for the study of Statics. This entails a thoughtful time-tabling of the year's work and a determined effort to adhere to the time allotted the various topics. It follows that a beginning in the work on Statics must not be too long deferred. Some teachers, instead of waiting until the conclusion of the course in Trigonometry proper, begin the Statics, say two periods a week, soon after Christmas.

2. The matter of "good form" should receive day-by-day attention and not be confined to admonitions at the close of the year, when bad habits have become ingrained in certain students.

3. Review of solution of triangles by the use of logarithms should be spread over as long a time as possible, by periodic practice with typical examples, so that pupils may become thoroughly familiar with the formulas appropriate to the various cases and the mechanical use of the logarithmic tables.

4. The basic principles involved in calculations with approximate numbers should be introduced in the earlier years of the High School courses in Mathematics and Science so that the incoming Grade XIII student may be familiar with at least the elements of this topic. Teachers of Mathematics and Science in the lower grades must share this responsibility.

5. The more difficult examples in many of the exercises, as well as most of those in the sets specifically marked for review, may be reserved for a second coverage of the work. Here again an accurate time-tabling is assumed.

6. It is suggested that teachers may save a considerable amount of classroom time by lessening their emphasis on purely manipulative exercises. The list on the back of this page, with specific references to the texts in common use, is furnished as a guide to their judgment regarding those topics and examples which might well be omitted with the majority of students. Teachers are assured that questions based on the supplementary or omitted material will not appear on the 1954 Departmental examination paper in Trigonometry and Statics. This restricton does not, of course, apply to the Problems paper.

J. G. Althouse

TORONTO, September 1, 1953.

Chief Director.

[OVER]

DETAILS OF REVISION FOR 1953-54

A. The following may be treated as *Supplementary Topics*:

Trigonometry

In Section 5. The functions of 3A in terms of those of A, with application to the ratios of 18° and its multiples.

In Section 9. Perimeter and area of a regular polygon (1) inscribed in a circle (2) circumscribed about a circle.

In Section 10. Inverse circular functions. Meanings and simple evaluations of the functions $\sin^{-1}x$, $\cos^{-1}x$, $\tan^{-1}x$.

General solution for trigonometric equations involving the sine, cosine and tangent. Note: For the majority of students, therefore, Section 10 is reduced to the solution of easy trigonometric equations, limiting the roots to the values lying between $+360°$ and $-360°$.

Statics

In Section 3. The polygon of forces.

Section 8. Machines: mechanical advantage; lever, pulley, differential pulley, wheel and axle, train of toothed wheels, inclined plane, wedge, screw.

B. Material which may be *omitted*:

Trigonometry

Topic	Text by Miller and Rourke	Text by Petrie, Baker, Levitt, MacLean
Section 3		
Longer identities on related angles. (The course of study emphasizes the diagrammatic approach.)	Page 188, Q. 21, 22.	Page 86, Q. 10 to 12 Page 89, Q. 28 to 30
Section 5		
Identities on Products and Sums when $A+B+C=180°$. (The basic relationships should be taken as applications of $180°-A$ and $90°-A$.)	Page 208, Ex. 2, 3, 4, 5 and similar exercises	Page 111, Ex. 1, Ex. 2 and similar exercises
Section 7		
Identities based on formulas for oblique triangles.		Page 124, Ex. 2, 3, 4 Page 125, Ex. 5, Ex. 37. Page 175, Sec. 90, Ex. 53.
Section 9		
Radii in terms of functions of half-angles.	Page 122, first paragraph.	Page 193, Sec C. Page 197, Sec. C.

Statics

In Section 9. Description of Von Jolly's experiment.